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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/022,896      | 12/20/2001  | George Zarris        | Q67643              | 2077             |

7590 03/29/2006  
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EXAMINER

HUGHES, DEANDRA M

ART UNIT PAPER NUMBER

3663

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/022,896 | <b>Applicant(s)</b><br>ZARRIS ET AL. |  |
|                              | <b>Examiner</b><br>Deandra M. Hughes | <b>Art Unit</b><br>3663              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4,6,13 and 17 is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7,8,11,12 and 14-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The amendment filed 1/23/06 has been entered.

#### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-2, 5, and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Onaka (US 6,510,000 filed Oct. 24, 2000).

With regard to claim 1, Onaka discloses a wideband Raman amplifier comprising:

- at least one multiwavelength wideband laser pump *producing wideband pump radiation signal having a plurality of different wavelengths (fig. 9);*
- means for adjustable independent power control of (col. 15, lines 25-35: "control unit 2 controls the output power and wavelength of each excitation light source"; emphasis mine) each of a plurality of different radiation wavelengths ( $\lambda_1 - \lambda_8$  are different wavelengths) of said wideband pump radiation signal produced by said pump laser.

The Examiner considers the claim language identified in italics above to be a functional limitation, i.e. intended use. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. Since the structural limitations have been met by the prior art, the Examiner has reason to believe that the function limitation can be performed by the prior art structure. See MPEP 2114.

With regard to claim 5, Onaka discloses independent power control via variable optical attenuators (e.g. fig. 1, #71-#73).

With regard to claim 7, the pump is coupled to the signal to be amplified (#21)

With regard to claim 8, the control unit (fig. 1, #2) is the control means.

With regard to claim 2, Onaka discloses a plurality of multiwavelength wideband laser pumps (e.g., fig. 9, #601 and #603; both #601 and #603 emit wideband radiation signals  $\lambda 1$ - $\lambda 4$  and  $\lambda 5$ - $\lambda 8$ , respectively). Each one of  $\lambda 1$ - $\lambda 4$  and  $\lambda 5$ - $\lambda 8$  are different radiation wavelengths.

Since applicant has not acted as his own lexicographer and defined 'wideband pump' in the specification, the Examiner is applying the definition of 'wide bandwidth pump' as it is known in the art, i.e. any pump signal having a bandwidth greater than approximately 3nm (e.g. see Foursa: US 6,717,963, col. 3, lines 43-45).

#### ***Claim Rejections - 35 USC § 103***

4. Claims 11-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 5,524,118 published June 4, 1996) in view of Onaka (US 6,510,000 filed Oct. 24, 2000).

With regard to claims 3-11 and 14-15, Onaka does not specifically disclose a single laser pump for a Raman amplifier. However, Kim teaches a single multiwavelength wideband pump (fig. 3) with independently adjustable optical feedback (fig. 3, ATN) to the single laser pump (LD) at a plurality of different wavelengths ( $\lambda 1$ - $\lambda N$ ). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to use a single laser pump for producing a wideband

pump signal for the advantage of reduced complexity, as is specifically taught by Kim (col. 1, lines 1-15).

With regard to claims 12 and 16, Onaka discloses that the gain profile is altered as a function of the pump power (e.g., fig. 3A).

#### ***Allowable Subject Matter***

5. Claims 3-4, 6, 13, and 17 are allowed.

6. Claims 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter. The prior art does not teach or make obvious that *the means for independent power control comprises at least one optical switch*.

#### ***Response to Arguments***

7. With regard to claims 1-2, 5, and 7-8, Applicant's arguments filed 1/23/2006 have been fully considered but they are not persuasive.

Applicant argues that Onaka fails to teach or suggest the laser pump source of claim 1, i.e., a laser pump producing a wideband pump radiation signal having a plurality of radiation wavelengths. (pg. 7, lines 1-2).

This argument is not convincing because Onaka clearly teaches a pump (#601) that produces a plurality of wavelengths ( $\lambda_1$  -  $\lambda_8$  are different wavelengths). This argument was addressed in the previous office actions (dated 9/21/05 and 3/16/05).

Applicant also argues that the Patent office has imprecisely interpreted unit #601 as a single source. (pg. 7, lines 7-8). This argument is not convincing because a 'source' is no longer claimed. Rather a "laser pump" (claim 1, line 2) is claimed. The Examiner considers the unit #601 to be the laser pump.


**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kim '432 disclose a wideband pump with a single laser diode.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Deandra M Hughes  
Primary Examiner  
Art Unit 3663